

What Is Claimed Is:

1. A method for applying a coating material onto a portion of a medical device having an accessible surface comprising:
 - holding the medical device and providing direct access to the accessible surface of the medical device;
 - positioning a coating nozzle body adjacent the accessible surface of the medical device wherein the coating nozzle body comprises a first fluid passageway having a first inlet and a constricted first nozzle orifice having a first nozzle diameter for discharging the coating;
 - flowing the coating material through the first fluid passageway towards the constricted first nozzle orifice;
 - pressurizing the coating material within the fluid passageway, wherein vibration of the nozzle body is dampened;
 - atomizing the coating material; and
 - spraying the atomized coating material towards an accessible surface of a portion of the medical device.
2. The method of claim 1 wherein the coating nozzle body further comprises:
 - a flat surface circumferentially surrounding the first nozzle orifice; and
 - a second fluid passageway having
 - a second inlet; and
 - a second nozzle orifice having a second nozzle diameter;
 - wherein the second nozzle orifice is positioned concentric with the first nozzle orifice and the second nozzle diameter is larger than the first nozzle diameter.
3. The method of claim 2 wherein the atomizing step comprises:
 - flowing the coating material from the first nozzle orifice onto the flat surface of the nozzle body to create a thin layer of coating material on the flat surface;
 - flowing an atomizing fluid through the second fluid passageway towards the second nozzle orifice;
 - ejecting the atomizing fluid from the second orifice at a high velocity; and

entraining a portion of the thin layer of coating material within the high velocity atomizing fluid from the second orifice;

wherein the thin layer of coating material is atomized into a plurality of coating material particles within the high velocity atomizing fluid.

4. The method of claim 3 further comprising:
pumping an atomizing fluid from an atomizing fluid reservoir, wherein the atomizing fluid reservoir is in fluid communication with the second fluid passageway, and the atomizing fluid flows from the atomizing fluid reservoir through the second inlet of the second fluid passageway towards the second nozzle orifice.
5. The method of claim 1 wherein the diameter of the first nozzle orifice is less than 0.35 mm.
6. The method of claim 1 wherein the diameter of the first nozzle orifice is 0.15 mm.
7. The method of claim 1 wherein the coating material is a therapeutic agent.
8. The method of claim 1 wherein the medical device is a stent.
9. The method of claim 1 wherein the coating nozzle body is a spray nozzle body.
10. A method for stabilizing a spray plume of a coating material comprising:
constricting the flow of a coating material through an exit nozzle orifice of a spray coating apparatus;
pressurizing the coating material within the spray coating apparatus, wherein vibration of the apparatus is dampened; and
atomizing a portion of a thin film layer of the coating material into a plurality of fine spray droplets of coating material, wherein the fine spray droplets reduce coating variability.
11. The method of claim 10 wherein the atomizing step further comprises:

flowing the coating material onto a flat surface of the spray coating apparatus surrounding the exit nozzle orifice, wherein a thin film layer of coating material is formed on the flat surface;

flowing an atomizing fluid circumferentially around the flat surface at a high velocity, wherein the flat surface is positioned at an angle to a flow direction of the atomizing fluid; and
entraining a portion of the thin layer of coating material within the high velocity atomizing fluid, wherein the thin layer is atomized.

12. The method of claim 11 wherein the flat surface of the spray coating apparatus is perpendicular to a flow direction of the atomizing fluid.

13. The method of claim 10 wherein the exit nozzle orifice has a diameter of less than 0.35 mm.

14. The method of claim 10 wherein the exit nozzle orifice has a diameter of 0.15 mm.

15. The method of claim 10 wherein the coating material is a therapeutic agent.

16. The method of claim 10 wherein the flat surface of the spray coating apparatus has a smooth finish.

17. A method for atomizing a spray coating material into fine spray droplets comprising:

flowing the coating material onto a flat surface, wherein a thin film layer of coating material is formed on the surface;

flowing an atomizing fluid around the flat surface at a high velocity, wherein the flat surface is positioned at an angle to a flow direction of the atomizing fluid; and

entraining an edge portion of the thin layer of coating material within the high velocity atomizing fluid, wherein the thin layer is atomized into a plurality of fine spray droplets of coating material.

18. The method of claim 17 wherein the flat surface is perpendicular to the flow direction of the atomizing fluid.